Claims

(Honeywell Claims)

1. A network for detecting biological agents, the network comprising:

a plurality of sensors for detecting agents in an area with a probability of accuracy;

a controller communicatively coupled to the sensors for receiving information from the sensors to determine whether such agents are a threat with a greater probability than any individual sensor.

2. The network of claim 1 wherein the sensors are selected from the group consisting of FLAPS, Lidar, mass spectrometer, antibody, and PCR detectors.

3. The network of claim 1 wherein the controller comprises multiple controllers.

4. The network of claim 3 wherein the controllers comprise multiple integrating controllers coupled to different sets of sensors, and an operating controller coupled to the integrating controllers.

5. The network of claim 4 wherein the number of integrating controllers is variable to cover and protect areas of diverse size.

6. The network of claim 4 wherein a set of sensors coupled to one integrating controller at least partially overlaps a set of sensors coupled to another integrating controller to provide verification or fault tolerance.

7. The network of claim 1 wherein the sensors are selected from the group consisting of early warning, broadband and specific sensors.

8. The network of claim 1 wherein information from sensors not targeted for a specific threat is used to help identify such specific threat.

9. A network for detecting chemical and biological agent threats, the network comprising:

a plurality of different types of sensors for detecting biological agents in an area;

a controller communicatively coupled to the sensors for phasing operation of the sensors based on information received from the sensors to determine whether an agent threat exists.

10. The network of claim 9, wherein a sensor is activated in response to detection by another sensor.

11. The network of claim 9 wherein the sensors comprise early warning sensor, broadband sensors and specific sensors, and wherein the early warning sensors are active prior to a threat being detected.

12. The network of claim 11 wherein selected specific sensors are activated based on information from broadband sensors.

13. The network of claim 9 wherein the sensors are selected from the group consisting of trigger sensor, Lidar, mass spectrometer, antibody, and PCR detectors.

14. A network for detecting chemical and biological agents, the network comprising:

a plurality of different types of sensors for detecting biological agents in a confined space, wherein the sensors are dispersed within the space;

a controller communicatively coupled to the sensors for receiving information from the sensors to determine whether an agent threat exists for the space.

15. A network for detecting agents, the network comprising:

a plurality of sensors for detecting agents in an area;

a controller communicatively coupled to the sensors for controlling the sensors and receiving information from the sensors to determine whether an agent threat exists based on probabilities of agents received from the sensors.

16. A network for detecting agents, the network comprising:

a plurality of different sensors for detecting agents in an area, wherein the different types of sensors are placed at predetermined positions within the area;

a controller communicatively coupled to the sensors for controlling the sensors and receiving information from the sensors to determine whether an agent threat exists.

17. A network for detecting biological agents, the network comprising:

a plurality of sensors for detecting agents in multiple areas with a probability of accuracy;

a plurality of integrating controllers communicatively coupled to selected groups of sensors protecting each area for receiving information from the sensors to determine whether such agents are a threat to a respective area with a greater probability than any individual sensor; and

an operating controller that receives information propagated to it from the integrating controllers and performs data fusion to determine a final decision for the entire area under protection.

18. A network for detecting agents, the network comprising:

a plurality of sensors for detecting agents in an area;

a controller communicatively coupled to the sensors for controlling the sensors and receiving information from the sensors to determine whether an agent threat exists, wherein some of the sensors are controlled by the controller based on information received from at least one of the other sensors.

19. A method of detecting chemical and biological agent threats using a network of multiple different types of sensors, the method comprising:

receiving an indication of a probable threat from at least one of the sensors;

modifying a sequence of operation of other sensors in the network based on the indication provided by the at least one of the sensors.

20. The method of claim 19, wherein a sensor is activated in response to detection by another sensor.

21. The method of claim 19 wherein the sensors comprise early warning sensor, broadband sensors and specific sensors, and wherein the early warning sensors are active prior to a threat being detected.

22. The method of claim 21 wherein selected specific sensors are activated based on information from broadband sensors.

23. The method of claim 19 wherein the sensors are selected from the group consisting of triggers, Lidar, mass spectrometer, antibody, and PCR detectors.

24. A network for detecting agents, the network comprising:

a plurality of different sensors for detecting agents in an area, wherein the different types of sensors are placed at predetermined positions within the area;

a controller communicatively coupled to the sensors for controlling the sensors and receiving information from the sensors to determine whether an agent threat exists; and

a modeling system to determine the optimum location of the sensors.

25. A method of making a network for detecting agents, the method comprising:

selecting a plurality of different sensors for detecting agents in an area;

placing the different types of sensors at predetermined positions within the area;

controlling the sensors and receiving information from the sensors to determine whether an agent threat exists; and

modeling the system to determine the optimum location of the sensors.

26. A method of forming a network for detecting agents, the method comprising:

selecting a plurality of different type of sensors for detecting agents in an area;

determining characteristics of the sensors;

using the characteristics of the sensors to model the sensors; and

configuring the network with the sensors using a genetic-algorithm-based system optimization.

27. The method of claim 26 and further comprising building the network in accordance with the configured network.

28. A method of modeling sensors for a network that detects agents, the method comprising:

creating multiple threat scenarios having different agent/clutter ratios;

collecting sample of the threats;

preparing the samples for sensing by the sensors;

verifying the threats; and

analyzing the performance of the sensors using the verified threats to create a component database.